



SDI Review Form 1.6

Journal Name:	Physical Science International Journal
Manuscript Number:	2014_PSIJ_10296
Title of the Manuscript:	The equation of state for non-ideal quark gluon plasma
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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PART 1: Review Comments

	Reviewer's comment	Author's comment <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>				
<u>Compulsory</u> REVISION comments	i) The author addresses the dissociation of Quarkonium states and using the non-relativistic radial wave equation, proposes a modification of the free energy potential. The author concludes that this modification is more applicable to describe the EoS of the QGP than the conventional Mayer's cluster expansion theory. ii) The model considered the present work is in general consistent with whatever is available in the literature. iii) The manuscript suffers from numerous composition and grammatical errors and needs to be corrected. iv) There are several queries/suggestions which also need to be addressed before this work is published. These are documented in the table attached below; <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 20%; text-align: center;">Line Number</th> <th style="text-align: center;">Corrections/modifications/replies to be made</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">8</td> <td>Replace 'systems' with 'states'</td> </tr> </tbody> </table>	Line Number	Corrections/modifications/replies to be made	8	Replace 'systems' with 'states'	
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8	Replace 'systems' with 'states'					



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	23	Replace 'qqbar' with 'quarkonium states'	
	30	Replace quark antiquark with 'quark/antiquark'	
	47-48	"In recent years.....QCD results" References must be given for the works the author is mentioning	
	48	"Although there is no" The existence of QGP is now well established at LHC and RHIC in experiments such as ALICE and STAR !	
	61	For the gas regime $\Gamma \leq 1$	
	62	"The plasma parameter....." This line is a repetition and should be dropped	
	66	$e\phi$ should be e_s	



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	71	Remove 'which'	
	85	A strong potential which includes a linear term such as the one in equation (4) has been extensively used for determining the coupling constant from the Charmonium decay	
	89	$n_f = 0$ will correspond to the meson (qqbar bound state). In the equation (5) $n_f = 2$ to (u,d) and similarly other values. What is the particular advantage of using $n_f = 0$? For including ccbbar and bbbbar states $n_f = 5$ should be used. It is not clear why n_f up to 3 is used.	
	91	Give justification for choosing $T_c = .2 \text{ GeV}$	
	103-106	Quote references for the values of masses used.	
	119	Mention what is r_0 ?	
	138	Details of how M_{nl} has been calculated using equation (8)	



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		numerically needs to be elaborated	
	140	Table (2) Column 4 The present work should be replaced with “ Internal Energy Potential (Present work)”	
	186	$\gamma = 0.57721\dots$ “It should be numerically represented to the decimal place up to which it has actually been computed”	
	194	where ‘n’ is the density.. “mention density of what ?”	
	206	Replace Schrodinger with “Schrodinger equation”	
	240-242	Figure (2) the running coupling constant decreases i) “This is already implied in the equation (5) which is used as an input. So what new information comes from this ?” ii) In figure(2) which curve corresponds to $n_f=0$? It is not shown.	



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		iii) α should be written as α !	
	263	Fig(3) mD should be written as m_D	
	Fig(7) and Fig(8)	Discrepancies between various calculations are quite pronounced. But the overall trends do match	
	397	It should be written that “ though Δ Tends to zero for large values of T, it still possesses a non-zero value up to $T = 3 T_c$	
	Fig 9	There is virtually no matching between the theoretical and lattice curves. An explanation for this must be included.	
	427	Are there more such phenomenological models ? If yes, the comparative references should be quoted.	



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<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		

Note: Anonymous Reviewer